

LISTING OF CLAIMS

These claims will replace all prior versions of claims in the present application.

1. (Currently Amended) An apparatus for generating and feeding moisture, comprising:

a reactor having an upstream gas inlet side, a downstream moisture outlet side and a catalyst for generating moisture from hydrogen and oxygen, wherein the reactor generates moisture from hydrogen and oxygen by catalytic reaction at a temperature of not higher than 450°C;

means for reducing pressure provided on the downstream side of the reactor, and disposed so that moisture leaving and fed from said reactor is reduced in pressure by the means for reducing pressure while an internal high pressure in the reactor is maintained, wherein the means for reducing pressure comprises one or more components selected from the group consisting of an orifice, a valve, a capillary and a filter;

a first reactor structural component having a material gas supply joint defining a material gas supply passage;

a second reactor structural component having a moisture gas take-out joint defining a moisture outlet passage, wherein the first reactor structural component and the second reactor structural component are mated to form a reactor shell having an interior space, and wherein the second reactor structural component defines an inside wall surface;

a first reflector having an outer edge and disposed in the interior space to face the material gas supply passage;

a second reflector having an outer edge and disposed in the interior space to face the moisture outlet passage,

_____ wherein the first reflector and the second reflector are identical flat plates symmetrically disposed in the interior space, and the first reflector and the second reflector each include a beveled peripheral portion inclined in cross-section;

_____ wherein the beveled peripheral portion is such that a distance between each first or second reflector and its respective closest first or second structural component is increasing in a direction towards the outer edge of the reflector;

_____ wherein the catalyst comprises a platinum coated catalyst layer provided on the inside wall surface of the second reactor structural component; and

a process chamber, wherein the reactor is connected to feed moisture gas to the process chamber, wherein the moisture gas fed into the process chamber is reduced in pressure by the means for reducing pressure.

2-21. (Cancelled)

22. (Previously presented) An apparatus for generating and feeding moisture according to claim 1, wherein internal pressure within the process chamber is 1-100 Torr.

23. (Currently Amended) An apparatus for generating and feeding moisture, comprising:

a reactor having an upstream gas inlet side, a downstream moisture outlet side and a catalyst for generating moisture from hydrogen and oxygen, wherein the reactor generates moisture from hydrogen and oxygen by catalytic reaction at a temperature of not higher than 450°C;

means for reducing pressure provided on the downstream side of the reactor, and disposed so that moisture leaving and fed from said reactor is reduced in pressure by the means for reducing pressure while an internal high pressure in the reactor is maintained, wherein the means for reducing pressure comprises one or more components selected from the group consisting of an orifice, a valve, a capillary and a filter;

a first reactor structural component having a material gas supply joint defining a material gas supply passage;

a second reactor structural component having a moisture gas take-out joint defining a moisture outlet passage, wherein the first structural component and the second structural component are mated to form a reactor shell having an interior space, wherein the interior space is dimensioned to provide a first distance separating the material gas supply passage and the moisture outlet passage, and wherein the second component defines an inside wall surface;

a reflector having an outer edge and disposed in the interior space, wherein the reflector is a thick plate and includes a peripheral portion inclined in cross-section;

wherein the beveled peripheral portion is such that a distance between the reflector and the second reactor structural component is increasing in a direction towards the outer edge of the reflector;

wherein the plate has a thickness exceeding one half of the first distance;

wherein the catalyst comprises a platinum coated catalyst layer provided on the inside wall surface of the second reactor structural component; and

a process chamber, wherein the reactor is connected to feed moisture gas to the process chamber, wherein the moisture gas fed into the process chamber is reduced in pressure by the means for reducing pressure.

24. (Cancelled)

25. (Previously presented) An apparatus for generating and feeding moisture according to claim 23, wherein internal pressure within the process chamber is 1-100 Torr.

26. (Previously presented) An apparatus for generating and feeding moisture, comprising:

a reactor having an upstream gas inlet side, a downstream moisture outlet side and a catalyst for generating moisture from hydrogen and oxygen, wherein the reactor generates moisture from hydrogen and oxygen by catalytic reaction at a temperature set in the range of 300°C to 450°C;

means for reducing pressure provided on the downstream side of the reactor, and disposed so that moisture leaving and fed from said reactor is reduced in pressure by the means for reducing pressure while an internal high pressure in the reactor is maintained, wherein the means for reducing pressure comprises one or more components selected from the group consisting of an orifice, a valve, a capillary and a filter;

a first reactor structural component having a material gas supply joint defining a material gas supply passage;

a second reactor structural component having a moisture gas take-out joint defining a moisture outlet passage, wherein the first structural component and the second structural component are mated to form a reactor shell having an interior space, wherein the interior space is dimensioned to provide a first distance separating the material gas supply passage and the moisture outlet passage, and wherein the second component defines an inside wall surface;

a first reflector disposed in the interior space, wherein the first reflector is a thick plate that includes a peripheral portion inclined in cross-section and a thickness exceeding one half of the first distance; wherein the catalyst comprises a platinum coated catalyst layer provided on the inside wall surface of the second reactor structural component; and

a process chamber, wherein the reactor is connected to feed moisture gas to the process chamber, wherein the moisture gas fed into the process chamber is reduced in pressure by the means for reducing pressure.

27. (Cancelled)

28. (Currently Amended) An apparatus for generating and feeding moisture, comprising:

a reactor having an upstream gas inlet side, a downstream moisture outlet side and a catalyst for generating moisture from hydrogen and oxygen, wherein the reactor generates moisture from hydrogen and oxygen by catalytic reaction at a temperature set in the range of 300°C to 450°C;

means for reducing pressure provided on the downstream side of the reactor, and disposed so that moisture leaving and fed from said reactor is reduced in pressure by the means for reducing pressure while an internal high pressure in the reactor is maintained, wherein the means for reducing pressure comprises one or more components selected from the group consisting of an orifice, a valve, a capillary and a filter;

a first reactor structural component having a material gas supply joint defining a material gas supply passage;

a second reactor structural component having a moisture gas take-out joint defining a moisture outlet passage, wherein the first structural component and the second structural component are mated to form a reactor shell having an interior space, and the second structural component defines an inside wall surface;

a first reflector having an outer edge and disposed in the interior space;

a second reflector having an outer edge and disposed in the internal space to face the moisture outlet passage,

_____ wherein the first reflector is disposed in the internal space to face the material gas supply passage, and the first reflector and the second reflector are identical flat plates symmetrically disposed in the interior space, and the first reflector and the second reflector each include a beveled peripheral portion inclined in cross-section;

_____ wherein the beveled peripheral portion is such that a distance between each first or second reflector and its respective closest first or second structural component is increasing in a direction towards the outer edge of the reflector;

_____ wherein the catalyst comprises a platinum coated catalyst layer provided on the inside wall surface of the second reactor structural component; and

a process chamber, wherein the reactor is connected to feed moisture gas to the process chamber, wherein the moisture gas fed into the process chamber is reduced in pressure by the means for reducing pressure.

29. (Cancelled)

30. (Previously Presented) An apparatus for generating and feeding moisture according to claim 26, wherein internal pressure within the process chamber is 1-100 Torr.

31. (Previously Presented) An apparatus for generating and feeding moisture according to claim 26, wherein the set catalytic reaction temperature is selected from the group consisting of 300°C, 350°C and 400°C.

32. (Previously Presented) An apparatus for generating and feeding moisture according to claim 26, wherein a temperature difference between the set temperature and an ignition point of hydrogen is set between 190°C and 230°C.

33. (Previously Presented) An apparatus for generating and feeding moisture according to claim 32, wherein the apparatus generates moisture at a rate of 2000 cc/minute.

34. (Previously Presented) An apparatus for generating and feeding moisture according to Claim 1, wherein the second reflector is clamped by bolts to the inside wall surface of the second reactor structural component.

35. (Previously Presented) An apparatus for generating and feeding moisture according to Claim 23, wherein the reflector is clamped by bolts to the inside wall surface of the second reactor structural component.

36. (Previously Presented) An apparatus for generating and feeding moisture according to Claim 26, wherein the first reflector is clamped by bolts to the inside wall surface of the second reactor structural component.

37. (Previously Presented) An apparatus for generating and feeding moisture according to Claim 28, wherein the second reflector is clamped by bolts to the inside wall surface of the second reactor structural component.